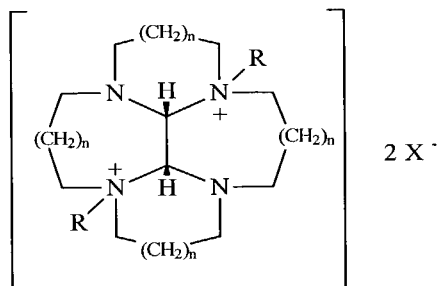


x is from 1 to 6; each index n is independently from 0 to 3; said process comprising the steps of:

- a) hydrogenating a tetraaza macrocyclic ligand precursor having the formula:



wherein X^- is an anion which provides charge neutrality, with from about 1 ppm of a transition metal hydrogenation catalyst at a pH of at least 8 to form a tetraaza macrocyclic ligand; and

- b) optionally isolating said ligand.
14. (New) A process according to Claim 13 wherein said transition metal hydrogenation catalyst is selected from the group consisting of platinum, palladium, palladium hydroxide, rhodium, Raney nickel, and mixtures thereof.
15. (New) A process according to Claim 14 wherein said transition metal hydrogenation catalyst is Raney nickel.
16. (New) A process according to Claim 13 wherein step (a) is conducted at a temperature of from about 40° C to about 100° C.
17. (New) A process according to Claim 16 wherein step (a) is conducted at a temperature of from about 60° C to about 80° C.
18. (New) A process according to Claim 17 wherein step (a) is conducted at a temperature of from about 75° C.
19. (New) A process according to Claim 13 wherein step (a) is conducted in an aqueous solution of a base selected from the group consisting of potassium carbonate, sodium carbonate, sodium hydroxide, potassium hydroxide, and mixtures thereof.

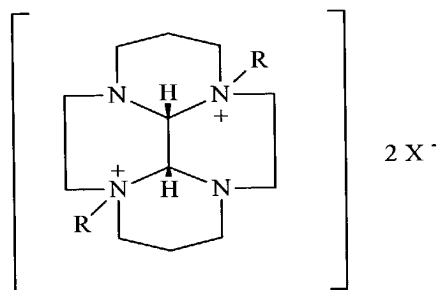
20. (New) A process according to Claim 19 wherein step (a) is conducted in aqueous sodium carbonate.

21. (New) A process according to Claim 20 wherein step (a) is conducted in 0.1 M sodium carbonate.

22. (New) A process according to Claim 13 wherein step (a) is conducted at a pH of at least 10.

23. (New) A process according to Claim 13 wherein step (a) is conducted in the presence of a solvent, said solvent selected from the group consisting of water, N,N-dimethyl formamide, methanol, ethanol, isopropanol, n-butanol, iso-butanol, tert-butanol, and mixtures thereof.

24. (New) A process according to Claim 13 wherein said precursor has the formula:



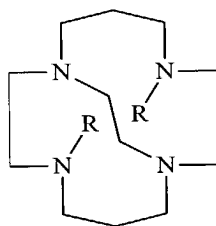
wherein R and X are the same as defined herein above.

25. (New) A process according to Claim 24 wherein each R is ethyl.

26. (New) A process according to Claim 24 wherein one R is methyl and one R is ethyl.

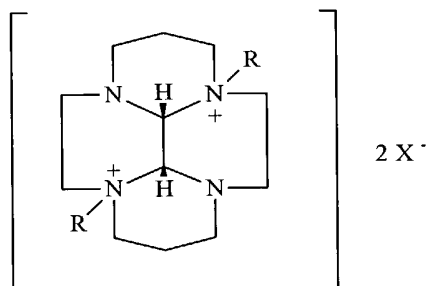
27. (New) A process according to Claim 24 wherein X is an anion selected from the group consisting of chloride, bromide, tosylate, mesylate, triflate, ethylsulfate, methylsulfate, and mixtures thereof.

28. (New) A process for preparing a tetraaza macrocyclic ligand having the formula:



wherein one R unit is methyl and the other R unit is selected from the group consisting of ethyl, propyl, butyl, pentyl, hexyl, and mixtures thereof; said process comprising the steps of:

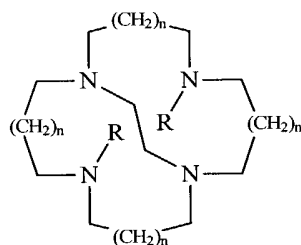
- a) hydrogenating a tetraaza macrocyclic ligand precursor having the formula:



wherein X^- is an anion which provides charge neutrality, with from about 1 ppm of Raney nickel catalyst in an aqueous solution having a pH of at least 10 to form a tetraaza macrocyclic ligand; and

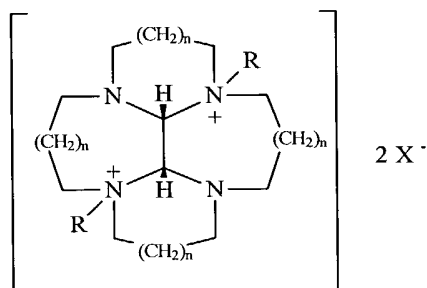
- b) optionally isolating said ligand.

29. (New) A process for preparing a tetraaza macrocyclic ligand having the formula:



wherein each R is independently C_1 - C_8 linear or branched alkyl, $-(CH_2)_xCO_2M$, and mixtures thereof, provided both of the R units are not methyl; M is hydrogen or a salt forming cation; x is from 1 to 6; each index n is independently from 0 to 3; said process comprising the steps of:

- a) hydrogenating a tetraaza macrocyclic ligand precursor having the formula:

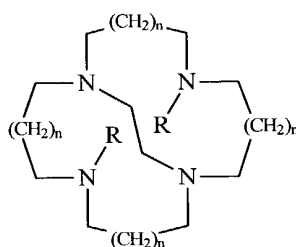


wherein X^- is an anion which provides charge neutrality, with from about 1 ppm of a catalyst selected from the group consisting of Raney nickel, supported palladium(0), palladium hydroxide, and mixtures thereof; at a pH of at least about 8; in the presence of a solvent, said solvent selected from the group consisting of water, methanol, ethanol, N,N-dimethyl formamide, n-butanol, iso-butanol, tert-butanol, and mixture thereof; at a temperature of from about 0° C to about 100° C; to form a tetraaza macrocyclic ligand; and

- b) removing the catalyst by filtration to form a crude filtrate;
- c) optionally isolating said ligand by a method selected from the group consistin gof crystallizing, extracting, distilling, and mixtures thereof.

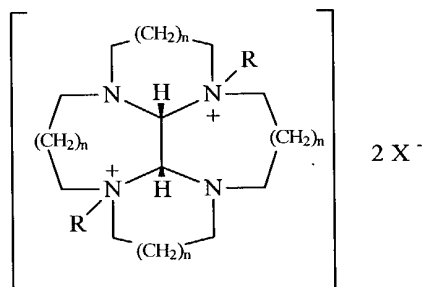
30. (New) A process according to Claim 29 wherein said process further comprises the step of treating said ligand with manganese to form a cross-bridged tetraaza macrocyclic transition metal catalyst.

31. (New) A process for preparing a tetraaza macrocyclic ligand having the formula:



wherein R is ethyl; n is equal to 1; said process comprising the steps of:

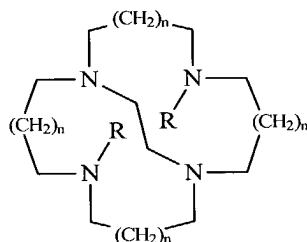
- a) hydrogenating a tetraaza macrocyclic ligand precursor having the formula:



wherein X^- is an anion which provides charge neutrality, with from about 1 ppm of a Raney nickel catalyst in an aqueous solution of at a pH of at least 10 to form a tetraaza macrocyclic ligand; and

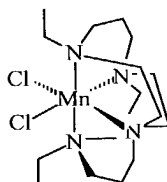
- b) optionally isolating said ligand.

32. (New) A transition metal catalyst comprising:
 a) a crossed-bridged ligand having the formula:



wherein each R is independently C₁-C₈ linear or branched alkyl, -(CH₂)_xCO₂M, and mixtures thereof, provided both of the R units are not methyl or butyl; M is hydrogen or a salt forming cation; x is from 1 to 6; each index n is independently from 0 to 3;

- b) manganese; and
 c) optionally one or more compatible ligands.
33. (New) A compound according to Claim 32 having the formula:



REMARKS

Claims 1-12 have been canceled without prejudice. Claims 13-33 have been added to particularly point out and distinctly claim the subject matter of the present invention. Antecedent basis for Claims 13-33 is found throughout the specification and original Claims 1-12.